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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,795	03/08/2002	Friedrich Lipp	M1211/20001	9493

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CAESAR, RIVISE, BERNSTEIN,
COHEN & POKOTILOW, LTD.
11TH FLOOR, SEVEN PENN CENTER
1635 MARKET STREET
PHILADELPHIA, PA 19103-2212

EXAMINER	
WANG, TED M	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,795	LIPP, FRIEDRICH	
	Examiner	Art Unit	
	Ted M. Wang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-15* is/are rejected.

7)☒ Claim(s) *16-28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/8/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Preliminary Amendment

1. The preliminary amendment filed on 3/8/2002 has been entered.

Claim Objections

2. Claim 10 is objected to because of the following informalities:

- In claim 10, lines 14 and 19, insert --- complex --- before "input signal", respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 5,894,496) in view of Whitmarsh et al. (US 5,623,226).

- With regard claim 10 and 11, Jones discloses a method adjusting phase angle phase modifier transmitting device (Fig.2 elements 10 and 50), wherein said method comprises:

  providing the transmitting device (Fig.2 element 10) comprising:

a quadrature modulator quadrature modulation inphase component and a quadrature phase component and complex input signal (Fig.2 element 28);

a power amplifier connected downstream the quadrature modulator (Fig.2 element 40 and column 5 lines 59-61);

a quadrature demodulator (Fig.2 element 54) quadrature demodulation of an output signal of the power amplifier (Fig.2 element 44) fedback inphase component and a fedback quadrature phase component (Fig.2 element 54 and column 6 lines 1-19);

a first differential amplifier (Fig.2 element 12 and 18), connected upstream the quadrature modulator (Fig.2 element 28), input supplied by the inphase component having a first the input signal (Fig.2 element 12 "+" input); and a second input supplied by the fedback inphase component (Fig.2 element 12 "-" input);

second differential amplifier (Fig.2 element 14 and 22), connected upstream the quadrature modulator (Fig.2 element 28), said second differential amplifier having first input second differential amplifier supplied by the quadrature phase component of the input signal (Fig.2 element 14 "+" input); and a second input of the second differential amplifier supplied by fedback quadrature phase component (Fig.2 element 14 "-" input); and

a phase modifier (Fig.2 element 50) which supplies quadrature demodulator an oscillator signal (Fig.2 element 64 output), shifted with regard to an oscillator

signal supplied to the quadrature modulator by the phase angle be adjusted (Fig2 element 24, 28, 50, and 54, and column 6 lines 20-61);

applying input signal with a inphase component and a quadrature phase component at each transmitting interval with a closed feedback loop containing the quadrature modulator, the power amplifier, the quadrature demodulator, the differential amplifier and the second differential amplifier (Fig.2 element 10 and column 7 lines 38-54 and column 5 line 30 – column 7 line 5);

measuring the quadrature phase component and/or the inphase component first measuring point behind an output the first differential amplifier second measuring point behind an output the second differential amplifier (Fig.2 element 28 output latter a, element 48 output letter b, and element 50);

determining phase correction value based the measured component; and quadrature phase component and/or the measured inphase component (Fig.2 element 50 and column 6 line 20-61); and

correcting the currently set phase angle of the phase modifier by adding or subtracting the determined phase correction value in a transmitting interruption interval (Fig.2 element 50 and column 6 line 20-61).

Jones discloses all of the subject matter as described in the above paragraph except for specifically teaching applying input signal with a predetermined constant inphase component and a predetermined constant quadrature phase component (with value = 0) to the input of the transmitting device.

Note that, since Jones discloses a Cartesian transmitter that automatically calibrate and continuously track and cancel unwanted phase shifts in a radio transmitter chain it does not require an initial calibration (column 7 lines 48-54), but it also can adapt some redundant process step to it such as the process step taught by Whitmarsh et al. that applying input signal with a predetermined constant inphase component and a predetermined constant quadrature phase component (with value = 0) to the input of the transmitting device (Fig.3 steps 303 and 305). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the method step as taught by Whitmarsh et al. into Jones automatic calibration and continuous tracking and canceling unwanted phase shifts method without damaging any performance.

- With regard claim 12, all limitation is contained in claim 11. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 13-15, the limitation of wherein the phase correction value ($\Delta\Phi$) determined by solving the following equation:

$$\Delta\Phi = \arctan(V_{QM}/V_{IM}) - \arctan(Q/I)$$

wherein V_{QM} is the measured quadrature phase component, V_{IM} is the measured inphase component, Q is the predetermined quadrature phase component and I is the predetermined inphase component can further be taught in Fig.2 element 10, and Fig.3A-3F, column 3 lines 6-59, and column 6 line 20 – column 7 line 54. It is inherent that the phase correlation value generated by the element 50 meets

the phase relationship as described in the above equation since I/Q demodulator 56 acts as a four-quadrant phase comparator in the sense that the unknown phase shift between the forward signal and the detected signal appears at the in-phase (I) and quadrature (Q) output of I/Q demodulator 56 in the complex (four-quadrant) phase plane. Because the I and Q outputs from I/Q demodulator 56 are modulated in amplitude by the modulating signal, corresponding peak detectors 58 an 60 (each including a forward biased diode connected through a capacitor to ground) are employed to remove the amplitude modulation components leaving only phase shift information (column 6 lines 20-61).

Allowable Subject Matter

5. Claims 16-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Reference(s) US 5,381,108 and US 6,466,628 are cited because they are put pertinent to the Cartesian transmitter. However, none of references teach detailed connection as recited in claim.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang

SHUWANG LIU
PRIMARY EXAMINER